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NOTES ON EARLY NEW ENGLAND EATING

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During their first winter in America, the founders of New England lived on groundnuts, which are not nuts at all, but tubers of the Indian potato, or wild bean. Boiled, they are reported to be agreeable and nutritious. Tradition is that the Puritans first made the acquaintance of Indian corn (or maize) by stealing it from the Indians. Certain versions assert that they afterward paid something for it. Let us hope they did. In any event, they were very soon raising their own. They also wisely followed the example of the Indians by using fish, if fish in quantity were readily obtainable, as a fertilizer. And, furthermore, they learned the virtues of "nocake." The term "nocake" was a corruption of the Massachuset word *noohkik* (*nokehick* being the closely similar Narraganset form). Nocake was made of selected Indian corn parched in hot ashes, then well sifted and thoroughly pulverized. When needed, it was mixed with cold water and drunk. The early Virginians knew it as "rockahomonie."

We have upon our library shelves a learned-looking volume on human foods and their nutritive value; this says nothing whatever about nocake. In fact, the author, though he writes eruditely of protein, gliadin, and phosphoric anhydride, dismisses Indian corn with a few words, saying that for a balanced ration it must be combined with other things. However that may be from the viewpoint of the dietetic chemist, the truth is that parched and pulverized maize was the sole food of Indian runners as they dog-trotted day after day through the forest; it was the chief dependence of the Indian at other times, in country where game was scarce or where he thought it dangerous to hunt; it sustained such

pioneers as Daniel Boone, Simon Kenton, and Davy Crockett in their emergencies; it was a mainstay of the "Two Captains," Lewis and Clark, on eight thousand miles of journey from the Mississippi to the Pacific; it has been relied on, time out of mind, by desert wanderers in Mexico and other countries of Latin-America. It was praised by such men as Roger Williams and Colonel William Byrd (who called it "Sprightful Bread"); and in modern times, T. S. Van Dyke, an outdoors expert of long and varied experience, has said of it: "It is the only form in which you can carry an equal weight and bulk of nutriment on which alone one can, if necessary, live continuously for weeks, and even months, without any disorder of stomach or bowels." Horace Kephart, an authority in "wildcraft," says, "I often carry a small bag of this parched meal when mountaineering."

Nocake (call it by any other name—rockahominy, cold flour, or *pinole*—it is just as good) was the rudiment with which New England folk began the study of preparing foods from Indian corn. That Indian corn and its associate, the pumpkin, played no small part in the morning of New England's history, may be seen from this allusion in Hinsdale's "Old Northwest:" "After describing the American method of tilling the corn and the pumpkin, by which two crops are produced on the same land in one year, while the girdled trees are still standing, Professor Shaler remarks: 'It is hardly too much to say that, but for these American plants and the American method of tilling them, it would have been decidedly more difficult to have fixed the early colonies on this shore.' " Indian corn and pumpkin were gastronomically united in primitive New England johnny cake, the unsweetened corn meal being mixed with a paste of mashed pumpkin that enriched it in both flavor and color.

Time would fail us to tell of all the other ingenious and gustable dishes made from Indian corn by those New England pioneers. There was corn bread, mixed with milk and eggs. There were corn fritters—fried batter cakes of grated sweet maize, with eggs and milk added. There was "ryaninjun," compounded of rye flour, corn meal, milk, water, and yeast; raised by the fire and baked in the brick oven. There was the pudding inseparable from the original New England "boiled dinner." And—most famous of all—there was hasty pudding, which Joel Barlow took as emblematic of the pristine simplicity that still marked his home region, and which he celebrated in a mock-heroic poem whose quiet humor remains vital. "It is interesting," observed

one commentator, "to see what a poetic product he could make out of such a subject as 'mush'" . . . . (for "mush" and "suppawn" were other and even less euphonious terms for the same viand).

The basis of the hasty pudding of New England was a batter made by stirring corn meal into boiling water and cooking it until it attained the proper "body." Barlow's authoritative words are:

> "In boiling water stir the yellow flour:
> The yellow flour, bestrew'd and stirr'd with haste,
> Swells in the flood and thickens to a paste,
> Then puffs and wallops, rises to the brim,
> Drinks the dry knobs that on the surface swim;
> The knobs at last the busy ladle breaks,
> And the whole mass its true consistence takes."

In eating hasty pudding, Barlow tells us,

> "Some with molasses line the luscious treat,
> And mix, like bards, the useful with the sweet."

For himself, he preferred to eat it with milk; plenty of the milk being first placed in a bowl, and the pudding then being dropped in until "the soft island looms above the brink." Sirup, sugar, or butter might also be used as accompaniments; and what was left of the pudding could later be fried. A note to Barlow's poem contains the following warning: "In eating, beware of the lurking heat that lies deep in the mass; dip your spoon gently, take shallow dips, and cool it by degrees. It is sometimes necessary to blow. This is indicated by certain signs which every experienced feeder knows."

Scholars have held that the pumpkin was known in England as early as 1570, having been introduced from the East. Probably, therefore, at least some of the early New England colonists had grown it or seen it grown, in a small way, in cottage gardens. It is supposed, however, to have been indigenous to North America; and its field cultivation with maize is thought to have been adopted from Indian practice. The pumpkin, besides being fodder for cattle and hogs, was no small item of old-time Yankee diet. In fact, an early rhymester, cataloguing "New England's annoyances," humorously declares,

> "We have pumpkins at morning and pumpkins at noon;
> If it was not for pumpkins we should be undone."

Paste of mashed pumpkin was, as we have noted, an added touch to true New England johnnycake. Pumpkin was also prepared as an independent dish by baking or stewing. It was sometimes kept, ready for use, in the form of long strips that had been dried by the fire; or in a mass that had first been stewed, then desiccated in the brick oven. Zealous spirits even got a poor kind of sirup out of it. The noblest product manufactured from the pumpkin was, of course, the pumpkin pie, sung by Whittier and "to every Yankee dear."

Beans were liberally grown and were often on the table. They were stewed, baked, or made into porridge. Genuine New England baked beans, it may be said here, have nothing in common with the pallid, liquescent messes frequently served today under that name, and most flagrantly in city restaurants. Bean porridge was a thick, rich soup, seasoned with fried pork (or more rarely with beef bones), pepper-pods, and salt. The beans were first softened by being soaked overnight in cold water; and after the other ingredients had been added, the porridge was fabricated by long, slow boiling. It could be "warmed over" indefinitely.

"Succotash" was as near as the early New Englanders could get to *msickquatash*, which was Narraganset for boiled corn-and-beans. Benevolently assimilated, like so much else, from the Indian aborigines, this mixture in its primary fashion was a kind of porridge made with bush beans and maize. These might be either fresh or dried. An author's footnote in "The Last of the Mohicans" shows that Cooper understood the dish—as prepared by Indians, at any rate—to be "composed of cracked corn and beans." The New England cook usually added a piece of pork; for nearly all of a Yankee pig save the squeal was in some way utilized.

In earliest New England, potatoes commonly were grown in gardens only, and did not appear in their own right as a leading item of everyday fare. Gradually, however, they came to be raised in quantity as a field crop. They were, practically from the beginning, an element of the "boiled dinner," which further included a large piece of salted beef, a cut of pork, the "pudding," and such vegetables of the domestic stock as beets, cabbages, carrots, and turnips. The pudding was a thin batter of corn meal and fresh milk, encased in a linen bag. When the water had reached the boiling point, the bag was suspended within the pot. The cooked pudding was eaten with cream (or sometimes with maple sugar and cream), thus answering the purpose of a dessert. It

would seem that the boiled dinner was almost as hardy a perennial as the boarding house turkey of modern jokesmiths. Having reappeared cold at supper (with, let us say, bread of some kind and in season a salad of chopped mustard leaves), it furnished the hash of next day's breakfast, and endured for a second dinner, refreshed with the pot broth and, if necessary, reinforced with a few beans.

Rye, wheat, and buckwheat were all extensively grown in early New England, and flour made from them was utilized in breadstuffs. In this connection it may be pointed out that not all of the early baking was in the comparatively familiar brick oven beside the kitchen fireplace. Either a "bake kettle" or a "tin kitchen" might be used. The bake kettle was a cast-iron pot with legs and a cast-iron lid. It was placed over a bed of live coals; the dough was laid on either the greased bottom or a baking plate; the lid was then put on and covered with live coals, which it was shaped to hold. The bake kettle gave much quicker results than the brick oven. Biscuit bread was ordinarily baked in it. The tin kitchen was a light utensil—of tin, as the name indicates; closed on all sides but that facing the fire; the top being curved or slanted downward and the bottom curved or slanted reversely. Whatever was to be baked was placed on a shallow pan supported within the tin-kitchen, and thus received direct heat from the hearth fire and reflected heat from the utensil. The collapsible aluminum reflector used today by campers is derived from the old-fashioned tin kitchen and works on exactly the same principles. Shortcake—a thin, flat, unsweetened cake, "shortened" with butter or lard and served hot, was frequently baked in the "spider." In certain rural communities of New England an ordinary frying pan is now colloquially known as a spider; but a spider is properly a deep, long-handled iron frying pan with legs, usually three, so that it may be stood in the coals.

Flapjacks were prodigious batter cakes cooked in a long-handled pan, and obtaining their name from the fact that they were skilfully "flapped," or turned in air, by being tossed from the pan and caught again. Before the wholesale destruction of the sugar maple, the making of maple sirup and maple sugar, now peculiar to Vermont, was rather common throughout most of New England. Many households annually made enough for their own use; and either the sirup or the pulverized sugar was applied to, or mixed with, a variety of victuals. One or the other was almost invariably a "spread" for the toothsome flapjack.

Wherever skim milk was fairly plentiful cottage cheese was in favor. Thus a by-product of the dairy was utilized for the making of a palatable, digestible, and nutritious food that lent variety to the bill-of-fare. Appreciation of cottage cheese and its possibilities was to a considerable extent revived in this country during the Great War through a campaign directed by the Department of Agriculture.

After a time, cultivated fruits furnished materials for pies; before that, wild brambleberries were used, as were also wild black cherries and even chokecherries, which for puckery taste are equalled by few other known things in nature. New Englanders brought the basic idea of pie from Old England, but they developed it and embroidered upon it with an almost unlimited ingenuity; and eventually they extended the term to "Washington pie," which is nothing more than two layers of sponge cake with pastry cream between them. In other parts of the country, a lugubrious visage was ascribed to the typical Yankee, the result (it was more or less jestingly said), in part, of Calvinistic theology and, in part, of indigestion caused by too much pie. So far as the pie is concerned, confirmation of this is perhaps had in the distinguished testimony of the "Autocrat of the Breakfast Table" that after an excess of pie he "wrote some sadly desponding poems, and a theological essay which took a very melancholy view of creation." "When," he adds, "I got better I labelled them all 'Pie crust,' and laid them by." Yet the "tranquil mirthfulness" of the Sage of Concord throve upon breakfast pie.

The ancient rhymer to whom we have already referred, includes the following sarcastic particulars:

> "If barley be wanting to make into malt,
> We must be contented and think it no fault;
> For we can make liquor to sweeten our lips
> Of pumpkins and parsnips and walnut-tree chips."

Passable substitutes for tea could be found by the early New Englanders—not only walnut (i.e., hickory) chips, but white cedar (arbor vitae) chips, too; sassafras wood and the bark of the root; Oswego tea; the tender tips of hemlock branches; and dried leaves of the black birch. All these things, and many others, have been used by American pioneers. The very first comers to New England were not coffee drinkers; for the use of coffee did not become common in Old England until the middle of the seventeenth century and the first coffee house in

London did not open its doors until 1652. In due course, however, Yankee land contributed its share toward placing the per capita consumption of coffee in the United States at a figure about twelve times greater than that for the United Kingdom. Early New Englanders could devise substitutes for coffee from wheat, pulverized burnt bread, and parched corn meal. We have also encountered a reference to the use of a certain "evan root," described as "the fleshy root of a low-growing plant of which," says the account, "I wish I could give the botanical name, as I have no doubt it still grows in uncultivated swamps." "Evan root" is undoubtedly a provincial corruption of "avens root," the plant in question being what the books call water avens (the *Geum rivale* of Gray). "The freshly dug roots," the account further says, "were to be washed and boiled, and used in place of coffee; it had an aromatic and slightly pungent flavor, not much resembling coffee; but with plenty of milk and sugar it made a very acceptable drink."

Wild game was abundant in earlier colonial New England. Moose ranged in goodly numbers through the more northerly forests. Deer were plentiful in all the woods. So were wild turkeys; their flocks averaging, it is said, from twenty to forty members. Henry Oldys, of the United States Biological Survey, has stated that ruffed grouse (the New England "partridge") and bobwhites were even more numerous than the wild turkeys and "were regarded as too insignificant to spend powder on." "In colonial days," he says, "Massachusetts even placed a bounty on ruffed grouse to protect crops. The heath hen, or eastern prairie chicken, now [1910] confined to Martha's Vineyard and reduced in numbers to about 200, furnished an abundant article of diet to the colonists in New England and New Netherlands—so abundant, in fact, that articles of apprenticeship often specified that apprentices should not be compelled to eat its meat oftener than twice weekly. Pigeons were innumerable. . . . . Dressed pigeons were sold in Boston for threepence a dozen."

Adriaen Van der Donck placed the market value of a prime buck in New Netherlands in 1653 at not more than $1.20 in present United States currency, and frequently much less than that. It is probably safe to assume that very nearly the same quotation would be true for New England at the same period. Wildfowl were to be seen in plenty in the bays and inlets along New England's coasts, and upon its inland waters. Of both salt-water and fresh-water fish an excellent supply was to be had.

All this game and fish made cheap and excellent fare in early New England homes. Biologist Oldys, although granting that the occupation of the land by man necessarily resulted in permanent reduction of the amount of wild game, asserts with truth: "The recklessness with which the early colonists destroyed the game that filled this land to overflowing is astonishing, even though such wasteful methods are usual in a new country." He also cites unregulated trade in game as another factor contributing toward its decrease. As it has decreased (or even been exterminated) in all readily accessible places, its market value has risen. "From a time," says Oldys, "when bounties were paid for ruffed grouse and apprentices appealed from a diet of prairie chicken, we have reached the time when ruffed grouse are within reach only of the rich and prairie chickens are not to be had at any price." He might have added that the existing scarcity (or, in many cases, complete absence) of native game—which, had it been rightly conserved, would now be affording at small cost a welcome and wholesome variety of diet —is nothing short of anomalous in New England, in every state of which, as statistics show, the acreage of improved farm land has for years been steadily diminishing.

Cattle, sheep, or swine that had been brought to a pioneer community of New England were ordinarily held too precious to be slaughtered for food until such time as a further supply of animals had been well assured. After that, a "beef critter" would occasionally be slaughtered by its owner and shared with the neighbors. Some of the meat was very often "corned"—that is, cured with coarse granulated salt. In the speech of those times the word "corn" was frequently used in the sense of a small, hard particle; as of salt, powder, or sand.

In early New England, mutton, though never so favored as it had been in the old English home, was used to a considerable extent. The Yankee quickly found, however, that among domestic animals the pig furnished meat the most cheaply. Hams, shoulders, and bacon were cured by smoking in "smokehouses," where they were hung on hooks above a smoldering fire. The smokehouse was commonly an outbuilding, but might sometimes be a closet or small apartment within the dwelling and having a smoke vent opening into a chimney. Salt pork was, of course, made by pickling in barrels of strong brine. Sausage was manufactured from minced pork, highly seasoned with pepper, salt, and sage. Usually it was laid down in pans, covered with a thin coating of lard for protection from the air, and cut out in slices to be

fried. Headcheese (known in Old England as *brawn*) was composed of portions of the head, or of the head and feet, cut up finely, seasoned, boiled, and pressed into a mass somewhat like a cheese. Pickled pig's feet were esteemed rather a delicacy. In time, certain alien meat preparations, such as rolliches (which originated among the New Amsterdam Dutch) and scrapple (which took its rise among the Pennsylvania Germans) became known in parts of New England and were made there.

Pure food laws were not needed in early New England. Towns had not yet begun to grow apace, nor industries to develop and become centralized. Life was chiefly agricultural, and the subsistence of each farm group was produced almost exclusively upon its particular farm. Housewives then required no special guidance as to what was or was not safe to use; no list of approved products, such as, a few years since, was issued by one New England town. But certainly they did require culinary knack; for, past a doubt, in those times *good* cooking demanded greater aptitude and skill than it does today.

EFFICIENT ARRANGEMENT IN COOKING LABORATORIES

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It is time that cooking laboratories were made as convenient as the modern kitchen. For many generations the housewife worked in an unplanned kitchen, with no analysis of processes and no thought of the relative position of operations. Often her kitchen was many times the necessary size, with storage center, sink, and stove so far distant from each other that she walked miles daily in accomplishing even the simplest work. Unfortunately, a large majority of these kitchens still exist. But under the leadership of those who have applied to their kitchens the principles of efficient arrangement, which of necessity are in application in any modern factory, women are demanding efficient kitchens in the new homes which are being built, and are rearranging the old kitchens when possible.

It is a part of every good home economics course to teach the close connection between efficient work and proper relative position of the

various processes involved. But, unfortunately, up to the present time, much the same conditions have obtained in cooking laboratories as those which for so many years made work so hard in most kitchens; namely, an arrangement which makes necessary much recrossing of steps; waste of space with greater distances to walk; and a relative position of operations different from that advocated in the home.

The hollow square arrangement has been the one most widely used. The advantage of this arrangement is that it places the student in a position facing the teacher who, from one position inside the square, can see what each member of the class is doing. But the teacher often must leave her position inside the square and go outside to help the individual student working on such operations as kneading bread; she also must go outside to attend parts of the equipment such as the range or supply cupboards; or to meet visitors. So that in the course of a lesson the teacher has a fatiguing road to travel. The fatigue is greatly increased by the fact that to arrive at the different points needing he; attention, she must many times cross the track of students who musr also leave their working positions to secure their necessary suppliesl teacher and student must wait for each other or squeeze past each other in narrow passageways, sometimes behind other students whose work is interrupted to let them pass.

Making the laboratory very large decreases this passage difficulty, but increases the number of steps to be taken, and does not affect the recrossing of paths; moreover, this way of overcoming the difficulty could not be used in small schools with limited funds, which often plan small laboratories with the hollow square, necessitating a painful amount of crowding and hindering of each other's work. Increasing the number of openings in the square itself decreases the crossing of paths, but increases expense, as it spreads out the class and makes more space necessary. Increasing the number of sinks in the room does more than anything else to decrease the amount of walking and consequent recrossing of paths; but, even if, as in the best laboratories on this plan, there is a sink to every four students, one group is working left handed toward the sink in a position which would never be advocated in a well arranged kitchen. To make these points clear, drawings have been made (1) of the laboratory actually in use in one of the best schools in the country; (2) of a projected laboratory which offers suggestions to overcome the difficulties shown in (1); and (3) a detail drawing of the working unit necessary in the suggested arrangement.

PLATE 1

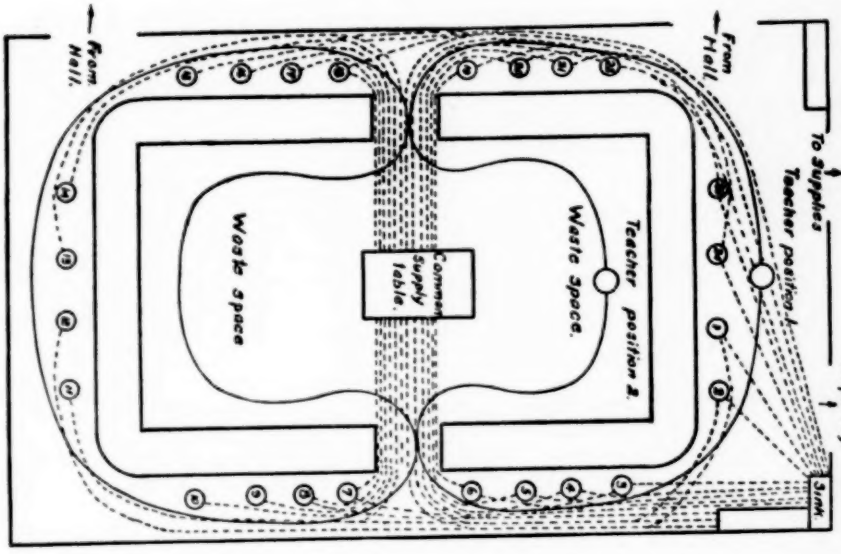


PLATE 2

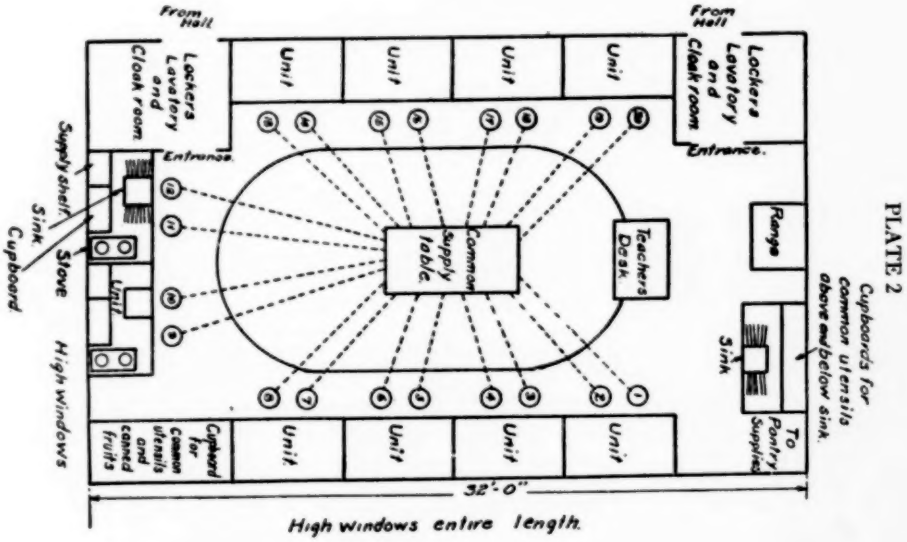
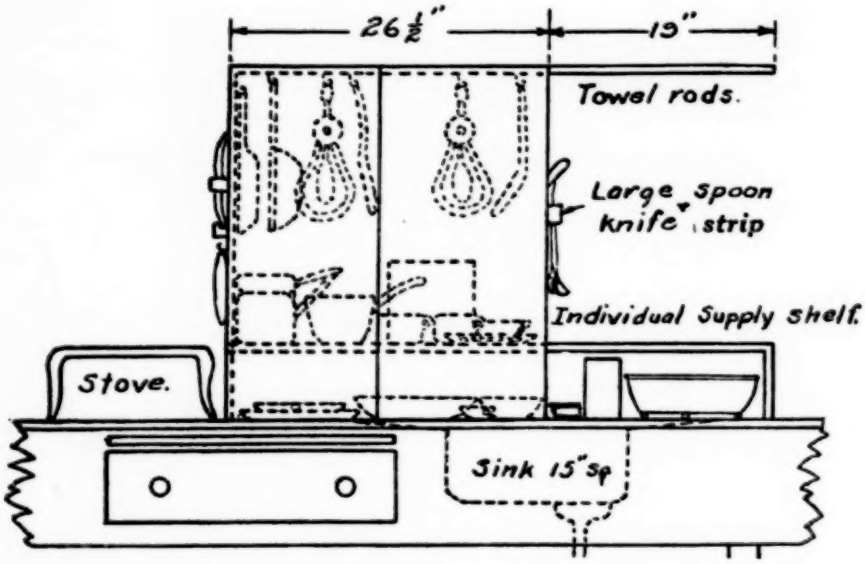


PLATE 3



In plate 1, which shows the hollow square arrangement that in this or a similar form is now in use in a majority of the cooking laboratories in our schools, note the course of the teacher, which is indicated by a solid line, from her various positions, in each of which she must place herself at least several times during each lesson. Contrast with that her main position in plate (2), where it will be seen that she can remain in a clear space in a position from which she can more quickly and easily reach the various points that will require her attention during the lesson. Her course around the room should also be clear after the class has obtained supplies and begun work.

In plate 2, which is merely an arrangement suggested to overcome the difficulties shown in plate 1, it will be seen that no recrossing of students need occur. Once, at the beginning of the lesson, the student leaves her position to secure supplies from the table directly behind her where monitors have placed them, as is customary before the lesson commences. Having obtained these, it will not again be necessary for her to leave her own unit; and the space behind her is left free for the teacher's passage. The objection might be raised that the expense of installing so many sinks is too great; but such an expense would be much smaller than that involved in unit kitchens, which are at present approved by many teachers.

Plate 3 is a detail drawing of the unit that may be arranged either as a group or individual unit. Note that in this unit the work progresses from right to left, with the same relative position of operations as should exist in any intelligently planned kitchen. The student obtains her supplies at the beginning of the lesson and places them on her individual supply shelf, which has the same relation to her sink as the pantry and refrigerator should have to a kitchen sink; she reaches into the wall cupboard directly in front of her for necessary utensils, a great advantage over the hollow square arrangement, where she must either pull out a drawer, necessitating a move from her working position, often using both hands to lift or rearrange the utensils to obtain those she wishes; or stoop uncomfortably to obtain them from low cupboards, the opening of whose doors again moves her from her working position.

When her food is ready to cook, she moves to the left and places it on her stove, then, while it is cooking, proceeds to clear her shelf and wash the dishes which, as the supply shelf has been cleared, have been piled there. From towel rods directly over her sink (pushed back against the cupboard when not in use), she takes her dish towels and cloth, and with plenty of water at hand she washes her dishes, cleanses her towels and hangs them over the sink to dry.

Space may be provided in the cupboard for cans of flour, spices, and other individual supplies; and, if desired, there may be an additional cupboard beneath the drawers, but this usually will be found unnecessary. The large utensils used by the entire class, or with only one to every four or more students, can be placed in large cupboards at the side or front of the room. The teacher will not be able to stand in front of the individual student in making suggestions. But if this point is carefully considered, it must be conceded that it does not outweigh the advantages gained by arrangement 2. In fact, there are many laboratories with other than the hollow square arrangement, which already have lost the advantage of the face-to-face position—such, for instance, as that in which the students work around large square tables, or in unit kitchens. Both of these last named arrangements are advocated by many teachers; but to the writer neither of them seems to solve the difficulties first outlined, namely, those of much walking on the part of the teacher, waste of space, and recrossing of paths.

It is hoped that neither housewives nor teachers will be bound by tradition when better conditions are obtainable which make for economy of energy and time and consequent better achievement.

STUDIES IN NUTRITION

FROM THE HOME ECONOMICS LABORATORY OF THE UNIVERSITY OF WISCONSIN

VALUE OF FEEDING EXPERIMENTS

MARGUERITE DAVIS

In nutrition as in other divisions of science our knowledge is but an arrangement of observations. The part that feeding experiments have played in assembling these observations is familiar to all. Reaumur, in his study of digestion in 1765, was probably the first to use this method of investigation. Cholmers Watson in 1906 examined the changes in the tissues resulting from a long continued monotonous ration. In this country Beaumont's classic experiments in digestion were the first great contribution, while the extensive work of McCollum and his co-workers and of Osborne and Mendel has been most conspicuous in recent years.

We hope for much from this method in the future. There is first the problem of growth. That the change in mass from the egg of microscopic proportions to the adult is due to the food absorbed is well known. It is not so well understood that the changes in structure and composition also result from the food. We have conceded that milk was necessary for babies, but it has not been generally appreciated that food of proper quality was necessary after infancy.

Then there is the problem of the maintenance of individual organs. A chemical and histological examination reveals much more than records of maintenance, growth, and reproduction. In view of the fact that a large number of animals should be examined before a conclusion with regard to the ration is arrived at, and of the fact that a chemical and histological examination requires more time and skilled labor than the growth and reproduction records, it seems desirable to have rather extensive preliminary observations to serve as a guide for more intensive work.

It is feeding experiments which keep adding to the list of essential substances in the ration. Chemical analysis and our common experience with food showed the necessity for protein, but the carefully controlled experiments of Hopkins and Willcock showed the necessity for tryptophane. At present our only test for the three vitamines is the biological test.

In spite of the progress that has been made there are still many confusing factors. Clear cut results are the exception rather than the rule. An animal may be subnormal and recover without change in the ration, or it may be subnormal and not recover when taken off the experiment. Frequently the individual variations within a group are greater than the variations between groups.

On the qualitative side a ration may be unsatisfactory in two respects. It may lack some essential or it may contain a toxic substance. An essential, like magnesium, is toxic if present in too high a concentration. Since foods are complex, it is extremely difficult to obtain a ration which is uniform. With a ration which is not uniform it is difficult to determine to what factor the unsatisfactory results are due. The chief source of variations in the ration is the vitamines. Hess and Unger have shown that 10 grams of fresh young carrot contain as much of the antiscorbutic vitamine as 35 grams of fresh old carrot. Doubtless difference in soil causes a difference in vitamine content. It is well established that the vitamine content of milk is dependent on the animal's ration. Aside from the difference in the initial amount, there is the destruction due to aging. This destruction is very rapid for the antiscorbutic vitamine. Until some rapid method of quantitative estimation of vitamine is devised, a ration uniform with respect to the antiscorbutic factor is a practical impossibility. Furthermore, there is some evidence that both this and the fat soluble vitamine operate indirectly in that their absence induces a lowered resistance to infection from ordinarily innocuous bacteria. It is therefore a complicated matter to obtain accurate measurements of the comparative value of foodstuffs.

The fact that different animals give different results with the same ration has been used as an argument against feeding experiments. On the contrary, it is an advantage, for it gives additional information. Individual variations among human beings are as great as the different requirements of different animals.

A ration restricted to egg yolk carries the rat through growth and reproduction. On the other hand, the addition of egg yolk to the rabbit's ration shows this complete food for the rat to be toxic for the rabbit.

We are inclined to believe that many common foodstuffs may be toxic to certain animals if fed in sufficient amounts for a sufficient time. From what little data we have it seems that different foodstuffs do not manifest their toxic effects in the same manner. Therefore it is of interest to classify the foods with regard to their toxic effects.

We have mentioned the difficulty of obtaining uniform conditions within a single laboratory. When one seeks to compare the results of different laboratories, the difficulties are, of course, greater. Again it is the vitamines which cause the greatest confusion. This is particularly true when cooked or preserved food is the source of vitamine, especially of antiscorbutic vitamine. With cooked food it is important to know how it was cooked; how long; the state of division; the amount cooked at a time; if boiled, the amount of water; if baked, the temperature; and the interval between cooking and consumption. The data with commercial preserved food is of purely economic value for the conditions are not known.

Conflicting statements due to different conditions are bound to cause skepticism. Even so, we believe that all honest and careful work is good work and will have its place when order succeeds confusion. We even consider that it is an advantage to have different conditions in different laboratories, for when one comes to doubt the accepted principles a discovery may follow.

The writer would be very glad if there were a clearing house for data in feeding experiments. It would be necessary to have strict regulations to exclude experiments which were not properly controlled. It would seem that by pooling observations much of the error from conclusions from insufficient evidence would be eliminated. One reason for hasty conclusions is a desire for priority. Under the pooling system priority would not be so important as careful and complete experiments.

It would be a great help to a laboratory which serves the double purpose of investigation and instruction to work in connection with other laboratories. For investigation the resources of the laboratory are more profitable when concentrated on a small problem, except for preliminary work designed to indicate the relative merit of various small problems. For instruction less intensive work is desirable.

OBSERVATIONS ON VITAMINE CONTENT OF FOODS

MARGUERITE DAVIS AND COLLABORATORS

INTRODUCTION*

The experiments reported here are not primarily studies in vitamine content. They are long time experiments to determine the effect of prolonged feeding of a given amount of a given foodstuff. In the case of the guinea-pigs and rabbits, the oats, hay, salt, and water ration to which the foodstuff is added is lacking in the antiscorbutic vitamine. The deficiency of this ration is reported by Hess and Unger,[10] and by Hart, Steenbock, and Smith.[8] Therefore, when our animals have exhibited the typical symptoms of acute scurvy in three weeks, we have considered that the added foodstuff did not, in the amount fed, contain sufficient vitamine to protect against scurvy. When, on the other hand, there is normal growth and reproduction we consider that the added foodstuff does contain sufficient vitamine. The intermediate conditions are often more difficult to determine. There is, for instance, a great difference between canned spinach and boiled onion. With the spinach-fed guinea-pigs, those receiving 15 grams daily are in better condition than those receiving 10 grams, while those receiving 20 grams are in better condition than those receiving 15 grams. On the other hand, although boiled onions unquestionably contain the antiscorbutic vitamine, and although 10 grams is unquestionably below the level necessary for complete protection, three lots of guinea-pigs on 10 grams, 15 grams, and 20 grams, respectively, were in equally poor condition at the end of 26 days.

We have more confidence in the beri-beri experiments with the pigeons. So far as we know, acute beri-beri results only from lack of the anti-beri-beri vitamine. To exclude other factors as far as possible we have fed the stock pigeon ration of equal parts corn, kaffir corn, barley, and split peas. This ration is heated in the autoclave at fifteen pounds pressure for 2½ hours. As the birds eat a normal amount, which is not the case when they are offered polished rice, and as grit is kept in the cages, the changes due to heating must be responsible for the deficiencies in the ration. When the addition of a fixed amount of a foodstuff (daily) prevents or delays the appearance of symptoms of beri-beri,

* Miss Davis' collaborators are students working under her supervision.

we consider the anti-beri-beri vitamine in the added foodstuff to be responsible. A gram of butter fat daily is given the pigeons receiving potato, as McCollum, Parsons, and Simmonds[12] have shown that potato lacks the fat soluble vitamine.

The following notes record the progress to date of the experiments.

Experiments With Various Foods

EFFECT OF HEAT ON FOOD

As stated above, the ordinary pigeon ration of corn, kaffir corn, barley, and split peas was heated in the autoclave for 2½ hours, at 15 pounds pressure and fed as the beri-beri producing ration. Since the pressure cooker is used in food preparation, it was considered of interest to feed a ration which was heated in it.

The 2 pigeons receiving the ration which had been heated in the pressure cooker 2½ hours at 15 pounds pressure developed beri-beri and died after 40 and 48 days, respectively. The 2 pigeons receiving the ration which had been heated in the pressure cooker 35 minutes at 15 pounds pressure were in excellent condition after 280 days.

EXPERIMENTS WITH CARROT

One pigeon received 2.5 grams of fresh carrot daily. It developed beri-beri in 43 days. After it had recovered with yeast, it received 5 grams of raw carrot for 67 days. Beri-beri again developed and the experiment was discontinued.

One pigeon received 5 grams of carrot canned in the laboratory. After 49 days the canned carrot was increased to 10 grams, because of the poor condition of the bird. It gained in weight and was apparently normal when, after 75 days on 10 grams, the pigeon was returned to the Genetics Department.

One female guinea-pig one month old received 5 grams of canned carrot and 5 grams of fresh cabbage. After 22 days the carrot was increased to 10 grams because of loss in weight. She gave birth to 2 normal young 88 days later. For 50 days she and her young received 60 grams of canned carrot and 5 grams of fresh cabbage for the three. The young grew at the normal rate. When 50 days old they received 10 grams of canned carrot and 5 grams of fresh cabbage each. Thirty-four days later the experiment was discontinued.

EXPERIMENTS WITH RAISINS AND WITH GRAPE-JUICE

Two pigeons received 2 grams of raisins daily. They died after 35 and 61 days, respectively, with no sign of acute beri-beri.

Two pigeons received 3 grams of raisins daily. One developed beri-beri in 59 days and died. The other received 4 grams of raisins on the 60th day and continued on this level for 90 days when the raisins were increased to 8 grams daily. It died 120 days later after a total of 270 days on the experiment.

One pigeon received 3 cc. of commercial grape-juice daily. Beri-beri developed in 30 days. The pigeon died.

One guinea-pig one month old received 3 cc. of the same grape-juice daily. Scurvy developed in 22 days. With the same pig, which had recovered on cabbage, 4 cc., 6 cc. and 10 cc. of grape-juice proved insufficient for protection against scurvy.

FEEDING EXPERIMENTS WITH MILK POWDER

Milk varies in its vitamine content. Its antiscorbutic value depends on the food of the cow, and is higher when the animals are in the pasture than when fed dried food. When the milk is first drawn its antiscorbutic content is generally high, but decreases rapidly on standing. Moreover, the exposure to heat in pasteurization (which is necessary to destroy any possible pathogenic bacteria and to make it safe for infant consumption) lowers the antiscorbutic value. The ordinary milk supply is therefore unreliable, and for this reason milk powders have been introduced into infant feeding.

From recent investigation by Chick and Hume, Hart and Steenbock, and Hess and Unger, it is seen that fresh milk given in sufficient quantities will protect guinea-pigs against scurvy. Chick and Hume[2] found that partial protection was afforded when each guinea-pig received 50–100 cc. certified milk, delivered in 24 hours, in addition to a basal ration of oats and bran, and that by the addition of 100–150 cc. scurvy symptoms were entirely prevented. Hess and Unger[9] found that only 80 cc. fresh milk, per individual per day, was necessary when superimposed on a ration of hay, oats, and bran. Hart, Steenbock, and Smith[8] using the same basal ration found that 100 cc. entirely prevented scurvy, while 30 cc. prevented the onset of scorbutic symptoms for 18 weeks.

For a long time it has been conjectured that heated milk was low in the antiscorbutic property. Recent experimental work has definitely

shown that milk, like other foodstuffs, loses its ability to protect against scurvy when heated, and the degree to which the antiscorbutic factor is destroyed depends on the degree of heat and the time of exposure to it.

Hart, Steenbock, and Smith[8] autoclaved fresh, whole milk at 120°C. for 10 minutes and found that with an ingestion of 47 cc. per day scurvy occurred in 7–9 weeks, whereas 30 cc. fresh milk prevented the onset of scurvy for 18 weeks.

In regard to powdered milks, the results of investigators differ. Hart, Steenbock, and Smith[8] accord them little value. Guinea-pigs, given powdered skimmed milk the equivalent of 40–45 cc. fresh milk, show typical scurvy in 5–6 weeks; on 75–90 cc. the onset is prevented for 5–15 weeks. Barnes and Hume[1] show that dried milk, given in amounts equivalent to 100–150 cc. fresh milk, was unable to protect against scurvy. Experiments on monkeys showed that 150–175 cc. fresh milk was necessary to protect from scurvy these animals weighing 2–3 kgm., whereas the corresponding ration of dried milk *freshly* manufactured by the Hatmaker process is from 250–300 cc. Hume therefore concluded that the corresponding amount of dried milk necessary for a guinea-pig would be equivalent to 200 + cc., an amount too large to be consumed by an animal of 300–400 grams weight. Hess and Unger, however, consider that little of the antiscorbutic vitamine is lost in the Just-Hatmaker process. This statement is confirmed by finding that infantile scurvy could be cured by giving dried milk prepared by this method.

There are difficulties in feeding milk to guinea-pigs. They do not like milk, and they do not require a large amount of liquid. Consequently it is hard to get a guinea-pig to consume enough milk to protect against scurvy. In feeding powdered milk, this difficulty has been met by mixing the powder into a paste. Some days the entire amount given was ingested; other days a small amount was left. It was impossible to determine the exact amount eaten.

We have obtained growth and reproduction and the prevention of scurvy on 20 grams milk powder prepared by the Hatmaker process. This is equivalent to about 150 cc. fresh milk.

Oats were offered only occasionally, in order that the pigs might eat more milk. Hay and salt constituted the basal ration. The fact that two generations have been born on the ration without showing signs of scurvy gives evidence of sufficient antiscorbutic in the diet. The ration is too concentrated for guinea-pigs which might account for the frequency of abortion. In the case of the last two litters, oats and bran

were added two weeks before parturition. Guinea-pigs on the ration seem to thrive, and the only animal of the second generation in turn gave birth to three, two of which are living.

Our data on condensed milk are in accord with the data of other investigators. Scorbutic symptoms appeared in 4 weeks on 75 cc. condensed milk. Steenbock and Smith[8] obtained scurvy in 30–40 days when they fed 36–52 cc.

Condensed milk supplies little antiscorbutic. Dried milk (Mammala) can be used as the only source of antiscorbutic in an otherwise satisfactory diet. It is wise, however, to use in infant feeding an additional food which contains the antiscorbutic factor, such as orange juice.

FEEDING EXPERIMENTS WITH POTATO

Vedder and Clark[13] fed 4 fowls as much polished rice as desired and 10 grams of raw potato daily. One developed beri-beri in 32 days, 1 in 38 days, and the other 2 remained well after 63 days when the experiment was discontinued. They fed the same number of fowls, under the same conditions 10 grams of boiled potato. One developed beri-beri after 25 days, 1 after 59 days, and the other 2 remained well after 63 days when the experiment was discontinued.

We have fed one pigeon on a ration of autoclaved grain, 1 gram of filtered butter fat, grit, and raw potato for 440 days. The filtered butter fat was added after 200 days on the experiment. (For amount of potato, see table 4.)

Of 5 other pigeons, one has received raw potato for 343 days, and one has received baked potato for 343 days. Another pigeon on baked potato developed acute beri-beri after 248 days on the ration and died. Of the 2 pigeons on boiled potato, one developed acute beri-beri after 210 days on the ration. It recovered on yeast and has been back on the ration for 94 days. The other pigeon developed acute beri-beri after 250 days on the ration. It recovered on yeast and has been back on the ration for 90 days.

These experiments indicate a loss in anti-beri-beri vitamine as a result of ordinary methods of cooking.

Preparation of potato: A small potato was baked daily at a temperature of about 300° for 20 minutes. Potato cut in small pieces was boiled with skin for 15 minutes. (See table 4.)

TABLE 1

Animals put on ration

MILK DAILY	NUMBER OF ANIMALS	SERIAL NUMBER	WEIGHT		NUMBER OF DAYS	APPROXIMATE NORMAL GROWTH	REMARKS
			Initial	Final			
grams			*grams*	*grams*		*per cent*	
20	2 males	62	324	801	366	85	No scurvy
		63	333	740	366	85	Condition apparently good
	2 females	66	225	722	326	50	After 110 days gave birth to 3 young. One lived—No. 80. After 208 days abortion.
		67	241		326		Abortion after 96 days and 150 days. After 280 days 5 young born—2 living

Growth and reproduction is secured on milk powder.

TABLE 2

Animals born on ration

MILK DAILY	NUMBER OF ANIMALS	SERIAL NUMBER	WEIGHT		NUMBER OF DAYS	APPROXIMATE NORMAL GROWTH	REMARKS
			Initial	Final			
grams			*grams*	*grams*		*per cent*	
20	1	80		680	214	100	Born on ration of No. 66. Growth normal. At 214 days gave birth to 3 young. 1 died
	2			247	27	100	Young of No. 67
				245	27	100	Normal growth

Young born on ration show normal growth on milk powder.

TABLE 3

Third generation on ration

MILK DAILY	NUMBER OF ANIMALS	SERIAL NUMBER	WEIGHT		NUMBER OF DAYS	APPROXIMATE NORMAL GROWTH	REMARKS
			Initial	Final			
grams			*grams*	*grams*		*per cent*	
20	2			208	31	75	Young of No. 80
				178	31	75	Growth 75 per cent normal. No scurvy

The third generation born on the ration show no scurvy. Growth is only 75 per cent normal.

TABLE 4

Pigeon data

POTATO DAILY	NUMBER OF ANIMALS	SERIAL NUMBER	WEIGHT		NUMBER OF DAYS	REMARKS
			Initial	Final		
			grams	*grams*		
Raw						
2 grams	2 pigeons	11			67	Died
		12			70	Increased potato to 5 grams.
5 grams	2 pigeons	12		255	140	Increased potato to 8 grams.
		13	380	280	110	Increased potato to 8 grams.
8 grams	same pigeons	12	255	281	233	In progress
		13	280	264	233	In progress
Baked						
5 grams	2 pigeons	16	402	275	110	Increased potato to 8 grams.
		17	455	315	110	Increased potato to 8 grams.
8 grams	same pigeons	16	275	250	138	Died—acute beri-beri
		17	315	228	233	In progress
Boiled						
5 grams	2 pigeons	14	360	235	110	Increased potato to 8 grams
		15	435	270	110	Increased potato to 8 grams
8 grams		14	235	208	140	Acute beri-beri. Recovered with yeast
	same pigeons		262	246	90	Returned to ration. In progress
		15	270	195	89	Acute beri-beri. Yeast given. Off ration for 60 days
			296	210	94	Returned to ration. In progress
Commercial dried						
2 grams	2 pigeons	18	330	253	36	Acute beri-beri. Died
		19	307	249	36	Increased potato to 4 grams
4 grams	1 pigeon	19	249	268	71	In progress

Chick and Rhodes[3] found that 17 grams of steamed potato gave slight protection, and 20 grams gave complete protection against scurvy. Givens and Cohen[6] found that guinea-pigs fed boiled potato equal to 5 grams raw potato developed scurvy in 28, 25, and 27 days.

Our experiments indicate that potato can be the sole source of anti-scorbutic vitamine, but we have not determined the amount necessary. Four grams of raw and 20 grams of boiled potato are not sufficient for reproduction. For our results with smaller amounts, see table 5. The boiled potato was prepared the same way as for pigeons.

TABLE 5

Guinea-pig data

POTATO DAILY	ANIMAL	SERIAL NUMBER	WEIGHT		NUMBER OF DAYS	REMARKS
			Initial	Final		
			grams	*grams*		
Boiled						
5 grams	1 guinea-pig	18	410	580	73	Increased potato to 8 grams
8 grams	1 guinea-pig	18	580	732	233	In progress
4 grams raw and 4 grams boiled	1 guinea-pig*	19	665	787	240	
Boiled						
8 grams	1 guinea-pig†	23	313	657	112	
Boiled						
8 grams	1 guinea-pig‡	24	369	503	99	Increased potato to 20 grams 7 days before parturition.

* Litter of 2 after 81 days on experiment. Young at 34 days given 8 grams boiled potato (see Nos. 23 and 24). Second litter of 4 after 214 days experiment. Two died on fifth day. Postmortem of young. Gums haemorrhagic. Lesion and haemorrhage of femur.

For first litter 6 days before parturition to 34 days after, boiled potato was increased to 20 grams. For second litter boiled potato was increased to 40 grams for 3 days after parturition.

† Young of No. 19. Growth normal for 70 days, then maintenance. Hind legs stiff when 145 days old.

‡ Young of No. 19. Litter of 3 when 131 days old. Two young died on fifth day. Ration discontinued on fifth day after parturition. Third young died on ninth day.

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SUGGESTIONS FOR THE TEACHING OF TEXTILES IN ELEMENTARY AND HIGH SCHOOLS

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The judgment of textile materials cannot be well taught except in connection with the natural use of the fabrics. Much of the knowledge can be acquired only through familiarity with cloth of various kinds.

The specific articles made in any two classes in sewing, garment-making, dressmaking, or millinery would not be the same, but would be determined by the type of pupil, by the needs of the group, by the economic situation, and by the organization of the curriculum. Hence the textile study would vary accordingly in the order of presentation of subject matter and the method of attack.

The foregoing statements make it clear that a suggestive course in textiles must be outlined in large, elastic units, ready to be adjusted to the exigencies of the situation, appealing to the pupil's interests when he sees a real need for acquiring the information.

The judicious use of texts and suitable references strengthens the work with pupils of all ages.

THE ELEMENTARY SCHOOL FOR BOTH BOYS AND GIRLS

The aim of such a course in the elementary school should be to acquaint children with the characteristic properties of the four textile fibres as found in materials commonly used, to help to a rough identification and a knowledge of their general uses, and to give children a knowledge of the raw products and the main processes through which the four fibres must pass in preparation for their manufacture into cloth.

Grades 1, 2 and 3

In the first three grades the children should learn to roughly identify cotton, silk, and wool by choosing their own materials for doll clothes,

and by feeling of their own clothing and frequently naming cloth when handling it. Knitting such articles as stripes for dolls' afghans or blocks for baby blankets out of woolen yarn gives a knowledge of its feel.

The children may get an understanding of the manufacture of woolen cloth through carrying on these processes in the schoolroom. Wool may be cut from the pelt, washed, carded, dyed, and spun in the fingers. A demonstration of spinning on the spinning wheel or, better still, practice on the spinning wheel by the children, themselves, may be supplemented by pictures of various kinds, making the spinning devices intelligible. Understanding of the factory processes may be acquired by the use of the reflectoscope, stereoscope, slides, moving pictures, or visits to industrial exhibitions or factories when possible.

Weaving of short lengths that can be used for rugs, mats, or bags gives a knowledge of cloth structure which makes it easy for children to understand how striped, checked, and plaid materials are made and how different weights of warp and woof will affect the material.

Handling of materials in cutting and sewing makes its own impressions. Frequent references to warp, woof, and selvedge are essential to make the children familiar with them.

Knowing how to knit gives a foundation for judging of knitted materials and a background for stockinet darning in the upper grades.

Grades 4, 5 and 6

The children of these grades should be given freedom in selecting materials for their own sewing problems whenever possible. Judgment will thus be developed naturally.

A permanent school exhibit of common textile fabrics can be made by one or more classes contributing samples, mounting and labeling them with the name of the fabric and the price per yard (if made by older children). These should be classified according to the fibre from which they are made and further grouped as to uses.

Weaving on looms made by the children themselves to carry cotton warp of light weight makes it possible for children to work out decorative weaves, such as stripes or checks. By the use of the warp and cloth beams long pieces like hat bands, sleeve bands of school colors, or belts may be woven. A class problem on the Colonial loom gives each child an opportunity of imagining himself in the home factory of the period. After such experiences the girl or boy can understand the devices used in the modern loom. Pictures of various kinds, textile exhibits, and

visits to factories are all helpful. A collection of samples of materials of fancy weaves will be interesting for the children to analyze to determine how designs are effected.

A study of comparative strengths of materials and the methods for testing warp and woof with thumb pressure gives a basis for selection of materials suited to various uses.

A study of the production of cotton, flax, and silk should be inserted wherever such study will best vitalize geography, history, and other subjects. Reference reading, pictures of various kinds, and industrial exhibits should be freely used to make the subject most interesting.

Distinction between cotton and linen should be given with a discussion of their adaptability to uses; cotton as a legitimate and illegitimate substitute for linen should also be discussed.

JUNIOR HIGH SCHOOL GIRLS

The aims of the work for the junior high school girls would include the two aims given for the elementary school, with the addition of these:

To teach girls to analyze their needs, their own individual appearance and their budgets in preparation for the selection of a garment.

To teach girls the wise selection of clothing from the standpoints of health and beauty.

To give girls a basis for wise judgment of household linens and bedding.

To give older girls an understanding of the methods by which certain "fancies" are made often at the expense of durability.

The work outlined for the elementary school, should be covered in the high school in the case of classes that have not yet had the work. In any case the information should be recalled in brief, for instance, when working on underwear, a critical study of the various materials suitable for underwear will recall the structure of the material, the characteristics of the fibre, and the adaptability to various uses. Tests for strength, washing out sizing, and counting threads to the inch by the use of a magnifier give one a good basis for judgment of quality. Children should handle both cheap and strong materials in order to fully appreciate quality. Attention directed to the widths of materials when cutting will help them to judge of economical widths.

Microscopic study of the fibres, the weighting of fabrics, the use of substitute fibers, an explanation of the legitimate use of shoddy, mercerization, burning tests, analysis of weaves and finish, will all help the girls to judge of materials and their comparative values. Microscopic

and chemical tests for identification of fibres in mixtures, tests for weighting, for fastness of dye and shrinkage, should be inserted whenever needed. Such tests can be found in various texts. This study may grow out of a need for school dish towels or napkins or preparation for buying of dress materials.

Lessons in laundering and cleaning are very valuable. In addition to giving the girl a knowledge and skill that will help her as a life-long asset, they help her to judge of the way various materials and qualities respond to laundering, to realize what kind of wear laundering requires of garments, to exercise a wiser care of her clothing, and to respect the skill and service of a laundress.

Parallel to laundering blankets or woolen flannels, pressing woolen clothing or making garments out of woolen materials, a careful study of the manufacture of both woolens and worsteds is easily grasped.

A study of production of silk, the various methods of adulterating silk materials, the accepted use of artificial silk for hose and dress trimmings, all tend to make the girls wiser consumers and more anxious to know facts upon which wise buying depends. Such a knowledge requires an intelligent suspicion of misrepresentation and insures a willingness on the part of the consumer to pay for materials that will stand hard wear. Time and labor are too valuable to waste on shabby materials that, even when new, do not appear well.

The skill of the manufacturer in misleading the purchaser will help to make every girl conscious of a need for legislation against misrepresentation and a need for a few materials manufactured according to specifications. Such study may be inserted in relation to seasonal buying of suits, coats, or dresses. Comparison of various experiences as to economy of various qualities of woolens and worsteds may stimulate the keeping of a class record of the life of all dresses, suits, and coats purchased by members of the class. This would lead naturally into a study of a well planned wardrobe and a clothing budget. Making the most of one's personal appearance should be studied with the coöperation of the Art Department. The hygiene of clothing is closely allied and may be taught in coöperation with the Department of Physical Education.

To learn something of the research work in textiles that is being done in colleges, in textile schools, in stores, and in commercial laboratories will tend to give the girls an intelligent attitude toward textile study, a desire to participate in further investigatons in high school, and possibly a special interest to follow in college.

THE PRESENT STATUS OF MISBRANDING ACTS AND OTHER TEXTILE LEGISLATION[1]

That there is need for protection of the consumer of textiles, no woman who buys and wears clothing will deny. When the shine washes off the linen table cloth and the weighting cuts holes in her silk dress, she knows her linen is cotton and her silk half tin, but she has no recourse. As a matter of honesty and right dealing, the question of pure textiles has always been important, but with the present prices it is imperative that the consumer be protected from frauds in fabrics. Processes of adulterating fabrics are being perfected and their use constantly increased until experienced buyers themselves cannot determine true values; the schools do not yet reach all women with the training which will teach them to know materials, and the women in the low income group who most need protection from fraud have none.

With the passage of the Pure Food Act in 1906, the Interstate Commerce Committee of the U. S. House of Representatives instituted the type of federal legislation which gives protection to the consumer by regulating interstate commerce in foods. A law of this kind, of course, does not reach intrastate commerce, but, following the initial passage of such an act by Congress, there is a tendency for the states to enact similar or identical laws and thereby give uniformity to the legislation throughout the country.

In the last ten Congresses pure fabric legislation has been agitated at least three times and at least twelve bills have been presented but have failed of passage because they were ineffective or without merit.

In 1916 Representative Alben W. Barkley of Kentucky introduced into the House a bill patterned very closely after the British Merchandise Marks Act which for thirty-two years has been in successful operation in the United Kingdom and in most of the British colonies. Legislation relating to the war and the railroads prevented consideration of the bill by the committee and action by the House until the beginning of this year when the so-called Truth-in-Fabrics legislation again began to attract attention.

There have been introduced into the present Congress at least six bills which relate to fabrics.[2]

[1] From the Committee on the Standardization of Textiles of the American Home Economics Association.

[2] Copies of these bills may be secured by writing to the House Document Room.

The French Bill (H. R. 11641) and the Capper Bill (S. 3686) are identical, having been introduced simultaneously into the House by Mr. French and in the Senate by Mr. Capper. The bill aims "to prevent the deceit and profiteering that result from the unrevealed presence of substitutes for virgin wool in woven fabrics purporting to contain wool and in garments or articles of apparel made therefrom." The general opinion seems to be that some of the effects of this bill would be to benefit the wool grower, to work a hardship on the manufacturer, to require federal appropriations for its enforcement, and to increase the price of clothing to the consumer by raising the price of new wool.

The Kreider Bill (H. R. 9283) prohibits "fraud upon the public by making or disseminating false statements or assertions concerning any merchandise, commodities, securities or service" and provides penalties for the violation of the act. The bill does not include definitions nor is it as comprehensive as the other bills, being aimed particularly at fraudulent advertising.

The Barkley Bill (H. R. 2855) prohibits the manufacture, sale, or transportation in interstate commerce of misbranded articles, regulates traffic therein, and penalizes violations of the law.[3]

The Rogers Bill (H. R. 13136) is very much like the Barkley Bill, with the exception of certain sections which deal with trade-marks and trade descriptions. It also provides for larger penalties for violations of the law.

The Interstate Commerce Committee held hearings on these bills (with the exception of the Kreider Bill which was referred by the House to the Committee on the Judiciary) from March 18 to March 31. The American Home Economics Association was represented by Miss Ina Pitner, who presented the cause of the consumer. The Association was also asked to prepare a statement to be incorporated in the published report of the hearings.[4]

As a result of the testimony offered at the hearings, the Interstate Commerce Committee seems to feel that the so-called Truth-in-Fabrics Law (The French-Capper Bill) might not give the desired results, but that legislation along the lines of the Misbranding Acts (The Rogers and Barkley Bills) is the kind of constructive legislation which the

[3] See "Recent Work of the Committee on the Standardization of Textiles" in the JOURNAL for March, 1920. See also *Textiles*, July, 1919, and *The National Clothier*, August, 1919.

[4] The Report of the Hearings may be secured by writing to the Secretary of the Interstate and Foreign Commerce Committee, House Office Building, Washington, D. C.

public needs. For this reason, it is expected that such a bill will be reported out by the Committee and an effort made to bring it before the House before its adjournment. Special effort is needed to get action before the close of a crowded session, and home economics people who are interested in the passage of the bill should make their interest known to their representatives as soon as the Bill is reported in the House.

PETTICOAT LANE TO PROSPERITY

The silks for the petticoats to be used in the wearing test reported by the Committee on the Standardization of Textiles in the March number of the JOURNAL are now on the looms. We expect the eight hundred skirts will be ready for distribution about the first of June. For the leaflet giving details of sizes and prices, send to the Committee's manager, Miss Ina K. Pitner, Crescent Place, Short Hills, New Jersey.

Very briefly, the silks are taffeta and messaline, three grades of each. The color of all the silks is identical, changeable navy blue and green. The same design is used for all the skirts. The workmanship is excellent. The prices range from $9.50 to $12.00. The skirts will be sent out in lots of five or more to one address, cash being required with the order. The leaflet contains full details. The quality of the skirts is higher than it would be possible to secure at a retail store for the same price. Purchasers will be asked to keep a simple record of wear and send it to the Committee on request.

The profits will be used to finance the growing work of the Committee.

Orders will be filled in the order in which they are received.

OMICRON NU

The Fifth Annual Conclave of Omicron Nu met at Madison, Wisconsin, with Eta Chapter, April 14 to 18, during the spring vacation of the University of Wisconsin. This meeting was a most eventful one in the history of Omicron Nu.

BETA CHAPTER

During the Annual Meeting of the New York State Teachers' Association which met at Albany the week of November 24, Beta Chapter at the New York State College for Teachers had an informal dinner and get-together in the college dining-room. Several alumnae were back for the occasion. An alumnae branch of Beta Chapter was organized at this meeting. Plans are being made for an alumnae meeting in June.

On Friday evening, February 6, Beta Chapter had an open meeting at the Home Economics Dormitory. All the faculty and students of the Home Economics Department were invited, and a large number attended. A short program was given including vocal solos and a talk by one of the Beta members explaining the aims of Omicron Nu and qualifications for membership. Miss Steele, one of our faculty members, entertained the guests with a most interesting account of her trip to England where she went this past summer to investigate the possibilities of affiliation between Home Economics in America and England, in an International Home Economics Association.

IOTA CHAPTER

Iota Chapter at University of Kansas, Lawrence, have set apart Tuesday and Thursday of every week from 10.30 to 11.30 for food sales. Each girl, with several assistants which she may choose, has charge of one particular week, and plans for the preparing and selling of the particular foods which she selects. The girls find rapid sale for articles. Some of the most salable articles are cream puffs, individual spice and chocolate cakes, cookies, sandwiches, and cinnamon rolls.

On March 13 Iota Chapter represented itself in an all University Carnival, the proceeds of which went to the Loyalty Movement of the University. All the Omicron Nu girls were dressed in white, wearing Hoover aprons and caps with "Hoover for President" printed across the front of the cap. Each girl was responsible for a tray, held by a strap placed around the neck, and she sold from this during the entire evening. The articles sold were typical of those found at every Carnival, among them popcorn balls, taffied apples, ice cream cones, and lemons with cinnamon sticks.

FOR THE HOMEMAKER

THE WASTE OF NATURAL GAS

RACHEL COLWELL

West Virginia University

Secretary Lane of the Department of the Interior called, on January 15, a public conference of governors, public utility commissioners, state geologists, home economics experts, natural gas companies owners and officials, and appliance manufacturers to discuss the conservation of natural gas.

When the meeting was called to order in the New Interior Building in Washington, the auditorium was filled with representative people from the six gas producing states: Ohio, Pennsylvania, West Virginia, Kentucky, Oklahoma, and Texas.

Secretary Lane in the first address emphasized the fact that the natural gas situation is acute, as there are over 2,400,000 domestic natural gas consumers, and they waste more than 80 per cent of the gas received. The efficiency of most domestic appliances can be trebled and one foot of gas be made to do the work of three. The purpose of this conference was to consider particularly possible economies in gas utilization and the mutual interests of the public and the gas companies.

Mr. Manning, Director of the Bureau of Mines, was introduced as Chairman of the meeting, and spoke on the part which the Bureau of Mines is taking in gas conservation. Much has been said by the Bureau of Mines and by others about the criminal waste of natural gas that is taking place in our gas fields. Natural gas, one of the most valuable mineral assets of the country, has been permitted to dissipate in such manner that the public has derived relatively small value from it. In recent years the public has demanded that efforts be made to minimize this waste. But, although possibly the most flagrant and the largest wastes have been in the fields and along the transmission lines of the gas companies, there have been great wastes in the household of every consumer, and the public, therefore, has been a party to this crime.

It is time for the public to take a new viewpoint on the waste of natural gas. It is time for the domestic consumer to realize that his duty is not done when he cries out against the flagrant wastes occurring in the gas fields, and demands of his Government that such wastes be abated; he must realize that he himself is likewise at fault and that it is time for him to set his own house in order. Furthermore, the domestic consumer must realize that these wastes do not concern him alone, and that he has not the right, merely because he pays for the gas, to employ it in any manner that pleases him, no matter how wasteful this may be. Natural gas is a natural resource in which every inhabitant of this country has an equity. Those who waste the gas do so at the expense of others who would use it efficiently. Natural gas is not replaced by nature, and in comparison with the life of the nation the duration of the supply will be brief. The public has a right, therefore, to demand that this natural asset be used to the greatest advantage of all. Natural gas in each city is a community asset and every consumer has a right to demand that wasteful use shall be prohibited in the interest of the public service. This is particularly important during cold spells in the winter when the supply is insufficient and actual suffering may occur. It is not right that any consumer suffer at such times because of the extravagance and waste of other consumers, even though they are willing to pay for the gas wasted. Nor can the citizens justify demands for better service from the public utility companies without making provision for the correction of abuses in their own homes. The public has been and is to-day just as much a party to the crime of wasting this natural resource as are the companies that produce and market it.

Mr. Samuel S. Wyer, a consulting engineer, who was chief of natural gas conservation of the Fuel Administration during the war, called attention to the tremendous waste of gas between the field and the ultimate consumer's meter, averaging about 35 per cent of the total gas reduced to possession at the wells, and to the tremendous waste of gas by the domestic consumer, averaging about 80 per cent of the total amount of gas received. Mr. Wyer feels that it is impractical to now correct much of the waste of gas in the field due to the fact that the expense involved would increase the cost of the gas so materially as to render its domestic use almost prohibitive. Yet to reduce the waste in the home it is necessary to make the gas worth saving by increasing somewhat the price of the gas. Increasing the price will not increase the

revenue of the gas company because, as is proved by reports, as the price of gas goes up the amount used by the consumer is lessened.

He referred to a study, made in the Home Economics Department of Ohio State University, of the relative cost of five fuels for cooking a dinner. The dinner cooked consisted of steak, scalloped potatoes, spinach, bread, butter, rice pudding, coffee, cream, and sugar, with portions for six people. The fuel cost was taken as follows: Natural gas $1.00 per 1000 cubic feet; soft coal $6.50 per ton, delivered to the house; gasoline 27 cents per gallon; coal oil 15 cents per gallon; electricity 3 cents per kilowatt hour. The natural gas used with properly directed short flame cost 1.1 cents with 1 to 2 ounce pressure; 2.2 cents with 4 to 5 ounce pressure and long flame; 2.5 cents with soft coal; 4.6 cents with gasoline; 5 cents with electricity; and 5.4 cents with coal oil. Natural gas then should be conserved for cooking purposes not only because of its convenience but also because it is an economical source of fuel.

Mr. Wyer claims that there are three main sources of waste in the home, which, if stopped, would add from fifteen to twenty years to the period that natural gas will be available for domestic use.

The first waste to be corrected is the amount of gas lost through leaking pipes and fixtures in the home. It is estimated that fully one-sixth of the gas which passes through the house meter is lost. That is, for every 1000 cubic feet registered through the meter 165 feet is never burned. For every dollar paid for gas, 16 cents is thrown away.

A second large waste of gas is in the use of inefficient heating and cooking appliances. When a coal furnace is used for burning natural gas only 25 per cent of the gas is utilized; 75 per cent of the gas is wasted. If the coal furnace is converted into a natural gas furnace 75 per cent of the gas is utilized. That means that in a properly constructed furnace one foot of gas will give as much heat as three feet did with the old wasteful type of furnace. With rightly constructed apparatus natural gas at $1.00 per thousand would cost the consumer no more than 33 cent gas does now. It would yield no more revenue to the gas company and would prolong the period of the supply of natural gas.

The natural gas cook stove with solid top and low set burner, usually more than 2½ inches below the cooking vessel, wastes 87 per cent of the gas brought to the stove. The artificial gas stove gives the same amount of service with one foot of gas that the natural gas stove does with 3 feet of gas. If it is not possible to use the correct type of stove the natural gas stove may be converted by:

Raising the manifold and burner supports so as to bring the burners to the proper height below the cooking vessel, or, preferably in some stoves, cementing a new burner casting on top of the existing low burner. If neither of these methods is practical it is possible to put a few nails or triangular pieces of thin sheet iron in the burner slots so as to have a support on which to rest the vessel. The principle involved is to have the vessel come in contact with the blue tip of the short flame. The yellow flame is wasteful because all of the gas delivered is not converted into heat. The blue flame gives the most heat. The burner should have holes drilled so as to allow the gas flame to burn straight to the cooking vessel.

No cook stove should be used with a closed top as it wastes the gas, but the top should be of the grid or skeleton type. The cook stove should be clean. That means that the person who uses the stove should know how to care for and how to use it properly.

The pressure of gas is likely to vary and in order to burn the least amount of gas there should be no blowing of the burners or any hissing sound. Hissing may be stopped by partially closing the gas cock.

When the pressure of gas is low it is necessary to use a large sized spud. A spud is the small opening immediately in front of the gas cock through which the gas passes into the mixer. Some stoves have adjustable spuds, others must either have new spuds or have the small opening made larger. With proper sized spud and the vessel placed about $1\frac{1}{4}$ inches above the burner it is possible to obtain satisfactory cooking results with pressure as low as $\frac{3}{10}$ inch of water pressure. This produces the short flame about $\frac{3}{8}$ inch long. The cooking can be done in the normal time and with less gas than would be used with the long flame and high pressure which is generally from 4 to 6 or 8 ounces of pressure.

Most incandescent mantle lamps are not properly adjusted and use much more gas than is necessary, usually 50 to 75 per cent more than would be required with proper adjustment. A hissing or roaring sound from the lamp is a sign of excessive consumption. The ordinary open flame burner, which requires $2\frac{1}{2}$ times as much gas to give the same amount of light as the incandescent mantle, is still in frequent use.

The third source of waste is in the burning of gas when it is not needed. One incandescent mantle lamp burning all the time for one year would consume 43,800 feet of gas; three such lamps would waste enough gas to supply one domestic consumer for a year. Many street lights are fitted with such mantles and kept burning all the time.

The leakage from gas fixtures if only one foot per hour will mean 8769 feet per year, a month's gas supply for the average family.

After Mr. Wyer's talk there was a general discussion, and the opinion of the conference was expressed in the following resolutions:

WHEREAS, The supply of natural gas is limited in quantity and is not being replaced by Nature, and

WHEREAS, There is no other fuel that can replace natural gas which is as cheap, as convenient and as efficient, and

WHEREAS, The supply of natural gas is failing in many communities; be it

Resolved, In order that the supply of natural gas may be prolonged and the service improved, this Conference recommends that the appropriate agency in each State which uses natural gas take measures to discover what amount of natural gas is now being wasted by the consumer, and the various causes of such waste, and adopt such measures as may be available to reduce such wastes and effect economies in order that the benefits from this natural resource be prolonged; and be it further

Resolved, That the appropriate agencies, both State and Federal, be urged to stimulate research in perfecting means and methods for a more efficient use of natural gas; and be it further

Resolved, That the appropriate State and Federal agencies be urged to conduct educational campaigns to instruct consumers and the public in the importance of the wastes of natural gas; how economies in the use of natural gas may be effected, and on the natural gas situation in general, that the public may be informed on the subject and deal with it in the most intelligent manner; and be it further

Resolved, That every effort be made towards arriving at understandings between the natural gas industry and the communities using natural gas as to how the supply of natural gas can be best conserved and its life prolonged; and be it further

Resolved, That a committee of ten be appointed by the Chairman of this Conference to represent the natural gas industry, and the public and Federal institutions to cöoperate with the Director of the Bureau of Mines in working out a constructive program for the conservation of natural gas and the bettering of the natural gas service, and in collecting and distributing information on this subject.

Every home keeper and teacher in gas consuming states should have a copy of the Bulletin published by the Department of the Interior, "Waste and Correct Use of Natural Gas in the Home." Every person interested in home keeping should know what natural gas cooking appliances are efficient, how to care for and how to use them.

HOMEMADE VERSUS READY-MADE CLOTHING

KATHERINE CRANOR

Professor of Household Arts, James Millikin University, Decatur, Illinois

With the present cost of clothing materials most women must consider more than ever before the question of how to be well dressed at the least possible expense. One step toward thrift in clothing and one of the best means of stretching the clothing allowance is to make one's own garments. When the cost of making does not have to be added to the cost of material the same money will provide a garment of much better materials and workmanship. When clothing is made at home, one-half or two-thirds the cost may often be saved. A dark silk dress for example, of fair material and workmanship, if it is a garment of distinctive style, will cost anywhere from $60 to $125. Four or five yards of material will make the dress; $5 per yard will buy silk of far better quality than is used in the best of the ready-made garments. Five dollars, or ten at most, should cover the cost of buttons and other trimmings, thread, and findings for the average dress, making the total cost of materials from $25 to $35.

The color can be chosen with more care and may be adapted more easily to the coloring and general personality of the wearer. The homemade garment more often expresses individuality, is more artistic many times, and is less apt to be duplicated. This last means a good deal to the average woman who wishes something different from that worn by her neighbor. Even the best dressmaker may duplicate some of her gowns. Often a customer is led to believe that the dress she is purchasing is an exclusive design, and she may pay a high price for it for this reason. Last summer three women met on the campus of one of New York's great universities, each from a different part of the country. One woman was tall and very stout, one of medium size, and one thin. Each had been sold the dress she had on with the idea that she had the only dress of its kind, and that it was just the thing which was best adapted to her especial type of figure. In reality the dress was suited only to the slender woman. Many times the unscrupulous salesman persuades his customer to buy by telling her that the style of hat or dress is just what she needs to bring out the good points in her figure or to cover up certain defects. Many of the dresses, suits, and coats offered are entirely unsuited to the general needs of the average woman and many of them are ugly besides.

Of course to make clothing successfully one must have some knowledge of garment construction, a feeling for line and color, and some skill of hand. Every woman does not have the required knowledge, but the public schools, normal schools, colleges, and universities give opportunities for training in textiles and clothing. Then there are extension courses, evening classes, short courses, bulletins, newspaper and magazine articles, as well as numerous lectures on dress, besides some helpful books. The woman of average intelligence who is interested in the making of garments may at least get some idea of the selection of materials, of design, and also of the processes of construction. The inexperienced woman might start on simple garments such as aprons, underwear, and children's clothes. After she has gained a little experience and has become more skillful in the use of her needle it will not be difficult for her to make her own dresses. Many say, "But why trouble to make clothes, as it is not possible to get the cut and style which is found in the ready-made garment." We must admit that in the average dress which is made in the home there is a lack of distinction in cut but this is unnecessary. There is no reason why such a dress should have a "homemade" appearance. It is possible to make a garment in the home which has the style of the gown made by the professional. It may even surpass it in cut. If the person who makes her own clothes has some artistic sense, a feeling for clothes, a knowledge of what is good in dress from the standpoint of art, is conscious of her good and her weak points, knows how to emphasize the good and to cover up the bad, it is not difficult to make a garment which is far more artistic than any she could buy for a moderate price. It may even be as chic as those shown in the best shops. The woman of artistic taste often is able to add little individual touches which are the making of a garment. The woman who can make for herself a few artistic dresses of distinctive cut, which may be used until they are worn out because they are simple and look nice, is fortunate indeed.

Great care must be used in the choice of materials when a garment is to be made at home. In order that it may be suited to its use, not only is it necessary to know for what it is to be used but also the style of garment which is to be made, so that the exact quantity of material may be computed. Guessing at the quantity shows poor judgment. It is always wasteful to buy too much and even worse to buy too little, since it is sometimes impossible to match a piece of material. Many people plan to have some left for the time when the garment is to be made over.

This is usually not worth while and does not tend to thrift in clothing, as a garment often changes color or wears in such a way as to make it impossible to use the new material. The quality of the material is important. A poor fabric does not wear, never looks well, and is more apt to change color and change its shape. It is better to economize on the number of dresses rather than on the quality of their material. In choosing color, consider the hair, eyes, complexion, personality, age, and build of the wearer, and the occasion for which the dress is intended as well as the fastness of the color. In considering durability, buy material which is firm. The weave also affects the wearing quality. For example: plain weave and twill weave wear better than satin, basket, and figure weaves, because these last have many loose threads that may catch on things and pull and in this way be easily spoiled. Be able to recognize fibers and adulterations. Know what you are buying.

The amount of time one has, the value of that time, and the amount of money one can afford to spend for clothing are factors which determine whether or not garments are to be bought or made at home. Often it is far more sensible to buy garments ready-made than to make them. Many women have their time fully taken by work which means more to them and to the world than making their own clothes could possibly mean. Many business women work hard every day and have no time for sewing except at night. They are too tired when evening comes to bother with making clothes, and sometimes they are not the people who sew with ease. If such women are making a fair salary they had far better get some training in wise selection and buy their clothing. Mothers sometimes find that they must choose between doing their own sewing and being companions to their children. Again there are women who have some leisure but have a strong dislike for sewing, who do not do it well or easily, yet cannot afford to hire everything made or to buy high priced ready-made garments. It is better for them if possible to do some kind of work which they do like and can do well and use the money toward buying their clothes. If one must hire one's sewing done, there is no great saving in cost over buying ready-made, but one gets better materials and better made garments, yet often they are lacking in style. The average dressmaker or sewing woman does not have the time to study line, color, individuality, and fashion sufficiently to turn out always a stylish, artistic, garment. Then, besides, she is not paid enough for her work to justify her in spending the time necessary to get such results. Each woman must decide for herself whether she is willing to sacrifice cost

for material, workmanship, and individuality, or vice versa. Again the woman who is clever with her needle, if she has a little leisure, may give the ready-made dress or other garment certain individual touches, which may change it entirely and in a way adapt it to her personality and individuality.

If clothing is to be bought ready-made the use of the garment must be considered and the occasion for which it is intended. Decide what you can afford to pay for it and try to get the full value of the money you have put into it. Remember that well-made, high-class garments of good material are not cheap. One must expect to pay a good price for quality, but the cost of the garment in relation to the clothing budget as a whole must also be considered.

Buy clothing which has been made under right conditions. The woman who is interested in bettering the condition of her fellow workers, who has a sympathy for society as a whole and an interest in it, is not going to wear the garment which has been made at the expense of the health and character of other women. She will not encourage sweated labor, unsanitary conditions, long hours, and underpaid labor by buying garments which have been made under those conditions.

Buy high-class garments, if possible,—garments of good material, style, and workmanship. By all means consider comfort and beauty. Have a few simple, well chosen clothes, and stick to lines and colors which are most becoming. Lack of art and individuality in dress is one reason why so many tire of their clothes and are willing and anxious to cast them aside for new ones. Distinction of style and perfection of cut determine to a great extent the success of a garment.

EDITORIAL

Colorado and the American Home Economics Association. The Centennial State, Colorado, can best express her welcome to the members of the American Home Economics Association through the opportunities for recreation, for rest, and for sightseeing, with which she has been so richly endowed. Colorado Springs, with her mile-high elevation, her days of sunshine and nights of cool refreshment, offers exceptional comfort and convenience for Association meetings.

Pike's Peak, the famous old sentinel of the Rockies, with its cog road and its broad auto toll road; the "Garden of the Gods," a district of unique rock formation; these, and numerous other attractions are in the immediate vicinity of the convention town.

Colorado contains within her boundaries two famous national play grounds, the Rocky Mountain National Park (Estes Park) and the Mesa Verde National Park.

A half day's ride to the north of the Springs brings the Colorado visitor to the Rocky Mountain National Park. Access to this wonderful mountain resort, nestling on "the top of the world," is possible only by means of automobile highways, the most spectacular of which follows the Big Thompson river in its winding course through rugged, rock-walled cañons. Adventure, the thrill of a hundred-mile view at sunrise, the breath taking ecstasy of a glance backward to one's starting point miles below, or just plain, lazy, old-fashioned fun, fishing or riding horseback, are all within reach of the sojourner in Estes Park. It has been repeatedly said that the peaks and ranges of the park offer every incentive, every thrill, and every satisfaction to the mountain climber that may be found in the Alps of Switzerland. One of the most popular climbs, requiring hardihood both of body and of nerve, is the ascent of Long's Peak, towering 14,271 feet above sea level—higher even than the famous Pike's Peak.

The Mesa Verde National Park is in the southwestern part of the state and contains what is considered the most notable and best preserved of the prehistoric cliff-dwellings. These ancient dwellings, clinging to the walls of overhanging cliffs, for all the world like swallow's

nests, are constructed of a masonry which has stood, with surprising resistance, the assaults of time, of weather, and of unknown battles. Finger prints of the toilers of centuries ago are still visible in the mortar.

These are a few of the things to see and "do" in Colorado. Besides these there are many, many other attractions such as the Denver Park Mountains, so extensive that they require a day by auto to cover. Almost every town within the state, especially along the foothills, has some scenic attraction to offer, reached invariably by smooth auto roads.

Nor should it be forgotten that Colorado Springs is on the way westward to Yellowstone National Park, and to Glacier Park.

Conference on Group Living. The invitation to a Conference on Group Living to be held at the Lake Placid Club May 27 to 31, already noted in the JOURNAL, has been extended by Mrs. Dewey to members of the American Dietetic Association, to the Conference of Deans of Women, the Institution Section of the American Home Economics Association, economic secretaries of the Y. W. C. A, superintendents of hospitals, faculties of colleges giving instruction in institution management, and others. This is not an official meeting, but affords an opportunity for those especially interested in the problems that arise in group living to have several days conference. Its chief purpose is to unify results, to broaden the scope of future research, and avoid duplication of work.

The program is arranged under six headings: Diet and food service; Buying; Training; Housing, Research; Personnel. Some of the topics are: Community Kitchen experiments; Coöperative agencies; Investigation of opportunities and training in technical fields; Floor plans for large group living; Hotel for women; Purchasing of meats; Buying of fruits and canned goods; Cost studies; Diet studies—National Council of Research; Recent labor studies. Round table conferences will be held on school lunches, eight hour service in households, and other topics. The list of speakers includes Dr. McCollum, Miss Arnold, Dr. Meeker of the Department of Labor, Dr. Cole of Harvard, Miss Geary of the Y. W. C. A., the president and secretary of the American Dietetic Association, and others equally well known to the home economics world, besides several experts from other fields.

The Lake Placid Club, as in former years, has extended the courtesy of half rates to the members of the conference. Motor and launch trips, walks and climbs, rowing, tennis and golf will add the charm of delightful recreation to the inspiration of the meetings.

Meeting of the American Home Economics Association in connection with the Department of Superintendence, N. E. A. At the meeting of the A. H. E. A. held in Cleveland, February 23 and 24, 1920, there was an attendance of between two hundred and three hundred at each session.

At the Council meeting held on Monday afternoon, Edna N. White, the president, presiding, there was an attendance of 18. New members of the Executive Committee were appointed as follows: Mildred Weigley, Alice F. Blood, Ava Milam, Alice M. Loomis, Mary E. Matthews.

Plans were discussed concerning the meeting to be held in Colorado Springs, Colorado, June 24–29, 1920. One of the most interesting topics for action was the proposed plan to establish at Constantinople College for Women a chair of Home Economics to be supported by the Association. The following committee was appointed to raise money for the fund to make the professorship possible: Abby Marlatt, Chairman; Isabel Ely Lord, Eastern states; Agnes Ellen Harris, Southern states; Isabel Bevier, Central states; Alice M. Loomis, West Central states; Ava B. Milam, Pacific states.

An unusually interesting program had been prepared for the meeting by the Program Committee, Abby Marlatt chairman. On Monday afternoon the main topic was Methods in High Schools. Helen Goodspeed, State Supervisor of Home Economics, Madison, Wisconsin, outlined a scheme for developing the problem solving method in home economics teaching. She offered specific suggestions for linking the present life of the girl with her work in home economics in the school. Rosa Biery, University of Chicago, Elementary and High Schools, presented a paper on Applied Economics in a One Year Home Economics High School Course. Miss Biery has worked out a very excellent scheme, and one with many possibilities for development. The general discussion of these two papers showed a keen interest in the topic.

At this meeting Miriam Birdseye, States Relations Service, Washington, D. C., presented a report of the work of the Textile Committee which is undertaking to promote standardization of textile fabrics, and promises to accomplish results along this much needed line.

Edna N. White, Director of the Merrill-Palmer School, Detroit, Michigan, was leader of the discussion.

The subject for Tuesday morning was Tests in Home Economics Teaching, Adelaide Laura Van Duzen, Supervisor of Home Economics, Cleveland, Ohio, presiding. Mabel Trilling presented the topic Stand-

ard Tests in Teaching Textiles and Clothing. The reports of this work, both in Cleveland, and in Blue Ridge, June, 1919, have been most interesting and valuable. Florence Williams, Supervisor of Industrial Arts, Richmond, Indiana, followed Miss Trilling and told how tests are an aid in the teaching and organization of home economics. Betsey Madison, Home Economics Department, University of Wisconsin, Madison, presented a paper on Teaching by the Meal Plan Method. After a lively discussion, Mrs. Mary Schenck Woolman spoke briefly upon the subject of the moving picture as an aid in the teaching of home economics.

On Tuesday afternoon, Lydia Roberts, Assistant Professor of Home Economics, University of Chicago, was leader. The general topic of the meeting was Child Feeding. Miss Roberts gave a very definite and concrete report on the field work which she has been doing for the Children's Bureau that carried with it confidence in the results to be gained through work along the lines of child welfare. Mary A. Harper, Association for Improving the Condition of the Poor, New York City, followed Miss Roberts and told of the work of a Feeding Clinic and Demonstration School. It is interesting to note that in work of this type the results are tangible and one is inspired to bend all efforts in every direction possible toward improvement in health through wise feeding. A very interesting exhibit of rats on different experimental diets was shown by Emma Francis, Battle Creek Sanitarium, Battle Creek, Michigan, with details in relation to the various experiments. Miss Francis made the very generous offer to supply those who request them with photographs of rats fed on different diets. Furthermore, she offered to send to anyone who wished them live rats for purposes of experimenting.

A home economics dinner was arranged by the local committee for Monday night, at which several prominent residents of Cleveland spoke. Visits had also been arranged to elementary and junior and senior high schools, to the Western Reserve University, to the Y. W. C. A., to factories serving lunches, and to hospitals.

Great appreciation was expressed for the work of the local committee which made the visit to Cleveland a most delightful one for all members of the Association.

CORA M. WINCHELL,
Secretary, American Home Economics Association.

Is the Calcium of Vegetables of Value? Since Sherman and Gillett showed convincingly that calcium is the food constituent which is most apt to be lacking in the diet of many people, nutrition workers have been concerned as to possible sources of it. Milk is well known to furnish the chief supply. Is this the only food which can give it satisfactorily? Is that supplied by vegetables of equal value?

In 1918 McClugage and Mendel,[1] published the results of experiments on feeding various forms of calcium to two dogs. They used milk, calcium carbonate, spinach, and carrots. The quantities of calcium fed were in no case sufficient to prevent loss of some calcium from the animals' bodies. The calcium from vegetables was much less completely utilized than from the other sources. From milk on the average only 27 per cent of that fed was lost, from calcium carbonate 35 per cent, and from the spinach and the carrots the large amount of 80 per cent. The experiments bring out clearly that, for the dogs, milk and the inorganic salt had a greater value as a source of this element than had the vegetables used.

More recently Mrs.Mary Swartz Rose[2] has published two series of experiments on the utilization of calcium by healthy young women, which give results quite different from those of the Yale investigators. All of the diets contained approximately the minimum amount of calcium on which calcium equilibrium can be maintained. In the first three weeks 70 per cent of the element came from milk and in the second two weeks milk was almost completely omitted and carrots substituted as the source of calcium. The calcium in this second period was as well utilized as in the first. It seems therefore possible for adults to obtain the required calcium largely from carrots.

[1] McClugage, H. B. and Mendel, L. B., Experiments on the Utilization of Nitrogen, Calcium, and Magnesium in Diets Containing Carrots and Spinach. *Jour. Biol. Chem.*, 35, 353, 1918.

[2] Rose, Mary Swartz, Experiments on the Utilization of the Calcium of Carrots by Man. *Jour. Biol. Chem.*, 41, 349, 1920.

NEWS FROM THE FIELD

Gift to the National Academy of Sciences and the National Research Council. The Carnegie Corporation of New York has given $5,000,000 to the National Academy of Sciences and the National Research Council. Part will be used to erect in Washington a home of "suitable architectural dignity" for the two organizations, and the remainder will be a permanent endowment for the National Research Council. "The council is a democratic organization based upon some forty of the great scientific and engineering societies of the country, which elect delegates to its constituent divisions. It is not supported or controlled by the government, differing in this respect from other similar organizations established, since the beginning of the war, in England, Italy, Japan, Canada, and Australia. . . . The council was organized in 1916 as a measure of national preparedness and its efforts during the war were mostly confined to assisting the government in the solution of pressing war-time problems involving scientific investigation. Reorganized since the war on a peace-time footing, it is now attempting to stimulate and promote scientific research in agriculture, medicine, and industry, and in every field of pure science."

This is a matter of great interest to home economics workers as well as to others interested in scientific progress and its application to life. As an instance may be cited the work of the Division of Biology and Agriculture, of which C. E. McClung is chairman. One of the committees of this division deals with "Food and Nutrition." Prof. J. R. Murlin is chairman. The committee has three standing sub-committees, namely: (a) Animal nutrition; (b) Human nutrition; (c) Protein metabolism in animal feeding.

A New Home Economics Club. The young women of the Home Economics Department of the State Manual Training Normal at Pittsburg, Kansas, have formed a Home Economics Club during the last semester. Officers for the year have been elected and the regular monthly business meetings have been marked by a good attendance and instructive and entertaining programs.

The object of this club is three-fold and the young women who make up the membership have as their aim the gaining of knowledge and skill in the science and art of homemaking; a realization of the importance of the home, its duties and relation to society; and the development of poise, dignity, and other qualities which bespeak true womanhood. Through the accomplishment of these ends it is expected that the department will be strengthened and the course enriched and broadened.

The Pittsburg Normal is a very young institution but a well balanced four-year course in Home Economics is offered and the general tone of the institution is peculiarly in keeping with the development of alert, sympathetic, accomplished teachers and workers in the broader field of homemaking.

A Health Campaign. The Department of Household Arts Education of Teachers College, Columbia University, is conducting a health campaign among the students of the department and others who have wished to enter it.

The departments of Nutrition and Physical Education are giving their hearty coöperation to the movement.

Records and weight charts are being kept and attention is given to individual cases needing advice.

The students are not only aiming to make themselves physically fit, but are learning how to organize and conduct a health campaign.

Of 131 students registered in this campaign, 22.1 per cent are 10 per cent or more below normal weight and 16.8 per cent are 10 per cent or more above normal.

A series of mass meetings has been arranged by the student committee for the members of the department. Various phases of the health problem will be presented by specialists in the field.

Each class participating in the contest appointed a committee of two students from its own membership to assist the general committee in the execution of the plans for the campaign.

Angeline Wood, Frances Zuill and Elizabeth Marsh are the members of the student committee in charge of the campaign. A staff committee of five members act as an advisory board. The members of this committee are Dr. Mary Swartz Rose, Dr. Thomas D. Wood, Wilhemina H. Spohr, Josephine A. Marshall, and Cora M. Winchell.

State Teachers Association in Columbia, South Carolina. At a recent meeting Dr. Benjamin Andrews of the Savings Division, U. S. Treasury Department, Washington, spoke to the members of the Home Economics Association in the afternoon and was on the general program for the evening. He spoke in an impressive way of the problems we are facing today, not only those of food and clothing, but of all living conditions. He told of the work some states are doing and urged the appointment of a program committee on thrift. The association felt especially favored in having him present.

Notes. A course of lectures on lunchroom management is being given in New York University by Miss Elizabeth H. Bohn. Some of the topics are: benefits of company lunch rooms; food requirements and standards; accounting; equipment.

The New York Association of Dietitians is making a survey in hospitals, throughout the state, of the courses in dietetics given nurses, the training offered to pupil dietitians, and the duties of the dietitians in the various hospitals.

National Education Association. The next annual meeting will be held at Salt Lake City, Utah, July 4-10, inclusive.

A feature of the program will be the Congress of Boards of Education on Thursday, July 8—forenoon, afternoon, and evening. Theme: "Financing and Managing the Public Schools." Members of school boards, state, city, and county superintendents, and educational experts will take part in the discussions.

The program of the **Department of Home Economics for the General Federation Meeting** in Des Moines, June 16–23, includes two conferences—one on Child Welfare as a Home Economics Problem in the Home of the Average Club Woman and the other A Home Economics and a Made in America program. The latter will include a presentation of the Dye Situation, the Textile Situation, and Federal Control of Food.

OUR CONTRIBUTORS

From time to time the JOURNAL is favored by contributions from those who are not well known to all our readers. Such contributors may have newly come into home economics work, they may only lately have entered the literary field, or they may have made their reputation in other lines of work. Of the last class is **George S. Bryan,** the author of "Notes on Early New England Eating." Mr. Bryan is a member of the American Historical Association, was formerly on the editorial staff of the Encyclopedia Americana and other important publications, is the author of several books, and is a frequent contributor to well known newspapers.

Marguerite Davis was associated with Dr. McCollum in his work at the University of Wisconsin. Her co-authors are at present students in that university.

It will interest many to know that **Alice F. Mendel,** the author of "Alimentary Hygiene and Rational Alimentation in the Year 3000," in our last number, is the wife of Dr. LaFayette B. Mendel of Yale University.